S.O.P FOR REVIEWING A
RCRA FACILITY INVESTIGATION (RFI)
QUALITY ASSURANCE PROJECT PLAN (QAPP)
SOP # HW-8
Revision:0

THIS DOCUMENT IS DERIVED FROM THE USEPA REGION V
PROJECT PLAN CONTENTS REQUIREMENTS GUIDANCE,
THE REGION II CERCLA QA MANUAL AND
THE NYSDEC RCRA PROJECT PLAN GUIDANCE

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INTRODUCTION

During a RCRA facility investigation (RFI), matrices of unknown composition, such as potentially contaminated soils and ground water, sampled to determine if remedial actions are required. This type of sampling is used to protect human health by accurately identifying hazardous waste and contaminated aquifers. If proper quality assuranc procedures are not followed when sampling potentially contaminated matrices, some hazardous wastes and contaminated aquifers will not be accurately identified.

The data from sampling matrices of unknown composition are used to determine if a waste material must comply with hazardous waste regulations, or an aquifer requires remediation. This type of environmentally sensitive data requires comprehensive qua assurance procedures to definitively identify hazardous wastes and contaminated aquifers.

Because critical environmental decisions are based on RFIs, regulatory agencies approve these project plans before sampling commences.

If the answer to any of the following questions is "No", it should explained on the final page of this SOP. If any procedures are r acceptable, they should be answered "No". For example, aqueous metals samples should be preserved with nitric acid until the pH<2. If the project plan does not indicate any preservative for aqueous metals

samples, or lists acetic acid as the preservative, the SOP question or sample preservatives should be answered "No".

	YES	NO	N/A
I. TITLE PAGE AND QAPP APPROVAL			
Is the QAPP approved by the organization's project manager and QAO? If a subcontractor is used, has the subcontractor's project manager and QAO also signed the QAPP?	___	___	___
II. TABLE OF CONTENTS			
Does the QAPP's Table of Contents include the following?			
1. Introduction.	___	___	___
2. A listing of the 16 QAPP elements.	___	___	___
3. A listing of QAPP appendices. (i.e., SOPs, summaries of past data, etc).	___	___	___
4. A listing of tables and figures incorporated in the QAPP.	___	___	___
III. PROJECT DESCRIPTION			
Does the project description allow a technical person, unfamiliar with the project, to understand the goals of the project?	___	___	___
Does the project description include the following?			
1. Introduction			
A brief description of the entire project, including the objectives of the current investigation phase, and strategies for future phases of the project.	___	___	___
2. Site Description			
A description of site specific features including location, borders, topography, geology, hydrology,	___	___	___

etc. Separate paragraphs/sections shall be used to clearly address each of these items.

	YES	NO	N/A
3. Site History or Background			
A brief summary of previous investigations and monitoring programs, and an overview of how those results relate to the current investigation.	___	___	___
4. Target Compounds			
Discussion of important site contaminants or target compounds, including required detection limits.	___	___	___
5. Project Objectives			
The discussion of project objectives should include the following:	___	___	___
a. A brief description of specific project objectives.	___	___	___
b. An outline of anticipated data applications, including field screening and field measurements. Examples of data applications include:	___	___	___
- Qualitative or semi-quantitative analyses for selection of sampling locations.	___	___	___
- Future enforcement actions.	___	___	___
- Data for remedial action alternatives.	___	___	___
- Identification of hazardous waste.	___	___	___
- Protection of public health.	___	___	___
- Delineation of environmental contamination.	___	___	___

	YES	NO	N/A
c. Data Variability			
For air monitoring, what are the potential sources of spatial and temporal variability, and how will the monitoring design account for them? Factors that may affect air sample concentrations include: season, time of day, upstream vs. downstream, ocean effects, matrix effects, and process variations.	___	___	___
d. Data Quality Objective (DQO) synopsis. DQOs are:			
1. Qualitative and quantitative statements which specify the quality of data required to make a decision.	___	___	___
2. Statements of the level of uncertainty that a decision maker is willing to accept when the results are going to be used in a regulatory/ programmatic decision.	___	___	___
3. Established prior to data collection.	___	___	___
4. Integrated with project planning.	___	___	___
5. Unique to the site.	___	___	___
6. <u>Sample Network and Rationale</u>			
Is there a concise description and justification of the sampling network design and rationale?	___	___	___
The sampling design and strategy must be justified. This may be referenced to readily available work plans and sampling plans. The following are minimum requirements:	___	___	___
a. Diagrams or site maps of sampling locations.	___	___	___
b. Short rationale of selected sampling locations.	___	___	___

c. Summary table listing matrices, parameters, and their frequency of collection. ___ ___ ___

YES NO N/A

NOTE: The sampling design shall include both laboratory and field parameters. Field parameters may include:

- Any field screening (i.e., screening of volatile organics using Hnu, OVA, etc.). ___ ___ ___

- Any field measurements (i.e., pH, conductance, temperature, etc). ___ ___ ___

- Hydrogeologic investigations (i.e., soil permeability, particle size, etc). ___ ___ ___

7. Project Schedule

A description of dates anticipated for start, milestones, and completion of the project and monitoring activities. ___ ___ ___
A milestone table or a bar chart consisting of project tasks and time lines is recommended.

IV. PROJECT ORGANIZATION AND RESPONSIBILITY

Are essential personnel/ organizations that are necessary for the remedial activity identified? ___ ___ ___

Are their responsibilities delineated? ___ ___ ___

1. Management Responsibilities

Operational responsibilities for the following tasks must be enumerated:

Final review and approval of QAPP	___	___	___
Field activities; audits of reports identifying non-conformance; and corrective actions	___	___	___
Field audits	___	___	___
Data assessment	___	___	___

	YES	NO	N/A
Performance and system audits of laboratories (does not apply to CLP labs)	___	___	___
Analysis	___	___	___
Performance and system audits of field activities	___	___	___
Approval of QA program procedures	___	___	___

A table, chart or figure showing project organizati
and line authority is recommended.

V. QUALITY ASSURANCE OBJECTIVES FOR DATA MEASUREMENT IN TERMS OF PRECISION, ACCURACY, COMPLETENESS, REPRESENTATIVENESS AND COMPARABILITY

Are the quality assurance project objectives (precision, accuracy, completeness, representativeness, and comparability) for both field activities (sampling, measurements and screening) and laboratory analyses clearly described?	___	___	___
Are project required acceptance limits and means to achieve these QA objectives described?	___	___	___

VI. SAMPLING PROCEDURES

Are detailed sampling procedures provided?	___	___	___

Sampling procedures should include the following:

1.	Detailed criteria for sampling point selection.	___	___	___
2.	Detailed criteria for collection of background samples, if any. Detailed procedures for preparing composite samples, if applicable.	___	___	___
3.	Detailed procedures for sample collection of specific matrices and parameters. Will grab or composite samples be collected? How are "grab" and "composite" defined? Will samples be homogenized? How will samples be homogenized? What types of sampling equipment will be used? What types of precautions will be utilized to minimize evaporation of volatiles?	___	___	___

		YES	NO	N/A
4.	Detailed procedures for sample packaging, handling and shipment, including time consideration (i.e., shipped daily by overnight courier) and field filtration procedures.	___	___	___
5.	Sample containers, reagents, preservatives, holding times, matrices, sample volumes, blanks, and analytical methods must be tabulated in a parameter table. Note 1: soil, water, and chlorinated water samples of the same analyte often have different preservatives. Note 2: Although we strongly encourage samplers to utilize CERCLA/SDWA pH preservation protocols (adding preservatives in the field, drop by drop, until the appropriate pH is achieved), SW-846 allows specified volumes of preservatives to be added to sample containers before sampling commences. Note 3: Similar EPA methods may have significantly different holding time requirements for the same analytes.	___	___	___
6.	Decontamination procedures for sampling containers, sampling equipment, drilling equipment, well evacuation equipment, and field instruments.	___	___	___

7.	Chain-of-custody procedures form.	___	___	___
8.	Detailed procedures for preparing/collecting trip blanks, rinse blanks and field duplicates.	___	___	___
9.	Documentation of sampling activities to record sample history and sampling conditions.	___	___	___
10.	Monitoring well construction procedures, evacuation procedures, and testing for NAPLs before well evacuation.	___	___	___

VII. SAMPLE CUSTODY

1.	Are Chain-of-Custody procedures adequately addressed?	___	___	___

YES NO N/A

VIII. CALIBRATION PROCEDURES AND FREQUENCY

1. Field Instruments

   a. Are initial calibration criteria acceptable? ___ ___ ___

   b. Are continuing calibration criteria acceptable? ___ ___ ___

   c. When will re-calibration be mandated? ___ ___ ___

2. Laboratory Instruments (Does not apply to CLP Laboratories)

   a. Are initial calibration criteria acceptable? ___ ___ ___

   b. Are continuing calibration criteria acceptable? ___ ___ ___

   c. When will re-calibration be mandated? ___ ___ ___

IX. ANALYTICAL PROCEDURES

1. Are detection limits for the proposed analytical methods capable of demonstrating compliance with regulatory action levels? ___ ___ ___

2. Are analytical deliverables based on DQOs? ___ ___ ___

3. Are appropriate analytical methods selected? ___ ___ ___

X. INTERNAL QUALITY CONTROL CHECKS

Are adequate quality control procedures specified for laboratory and field activities? Parameters of concern include the following:

	YES	NO	N/A
1. Field Activities (Measurements and Screening)			
a. Continuing calibration check	___	___	___
b. Replicate analyses	___	___	___
c. Spike sample analyses	___	___	___
d. Blanks (trip blank, rinse blank, DI Water blank)	___	___	___
e. Quality control (QC) samples	___	___	___
f. Zero and span gases (i.e., air monitoring)	___	___	___
g. Calibration standards and devices, etc.	___	___	___
2. Laboratory Analyses (Does not apply to CLP Labs utilizing CLP methods)			
a. Method blanks	___	___	___
b. Reagent/preparation blanks	___	___	___
c. Matrix spike and matrix spike duplicates	___	___	___
d. Calibration standards	___	___	___
e. Internal standards	___	___	___
f. Surrogate standards	___	___	___
g. Laboratory duplicate/replicate analysis, etc.	___	___	___

XI. DATA REDUCTION, VALIDATION AND REPORTING

1. Are methods described for reducing both field and laboratory data to a final report?	___	___	___
2. Are the Functional Guidelines or the Region II data validation protocols used to validate data? If another data validation protocol is proposed, it must be approved by EPA.	___	___	___

	YES	NO	N/A
3. Is the data validator independent of the laboratory which analyzed the samples? (Note: this restriction only applies to RFI sampling).			

XII. PERFORMANCE AND SYSTEM AUDITS

1. Field Audits

Will internal audits be administered by contractor's site manager or QA officer?	___	___	___
At what frequency will these audits be conducted?	___	___	___
Is the Field audit SOP adequate?	___	___	___

2. Lab Audits

Are recent (within last 12 months) performance evaluation sample results and state audit reports for the analytes of concern acceptable? (Does not apply to CLP Labs).	___	___	___

XIII. PREVENTATIVE MAINTENANCE

Are preventative maintenance procedures for field and laboratory instruments adequate?	___	___	___

XIV. SPECIFIC ROUTINE PROCEDURES USED TO ASSES DATA PRECISION, ACCURAC AND COMPLETENESS

Are the procedures used in assessing the accuracy and precision of analytical data, and completeness of data collection clearly documented? Provide example equations for the % recovery, RPD and % valid data. Other data assessment procedures should be described as well.	___	___	___

Are equations provided to demonstrate how precision

and accuracy will be calculated? ___ ___ ___

	YES	NO	N/A
XV. CORRECTIVE ACTION			
Does the description of corrective action address the following?			
1. Is there a mechanism for initiating corrective actions?	___	___	___
2. Are there procedures for developing, approving and implementing corrective actions?	___	___	___
3. Will appropriate alternate corrective actions be taken?	___	___	___
4. When will the laboratory reanalyze samples because QC problems such as: surrogate recoveries, calibration, internal standard area counts, contaminated method blanks, holding time exceedences, and analyte concentrations outside the instrument calibration range?	___	___	___
XVI. QUALITY ASSURANCE REPORTS TO MANAGEMENT			
Will quality assurance reports for management be generated?	___	___	___